

CLAIMS**I claim:**

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AI 5 1. A method of establishing a TCP/IP connection between a client and a server such that the server may better withstand a SYN flood attack, the method comprising:

receiving a TCP SYN packet requesting the formation of a TCP/IP connection from a client, the TCP SYN including a source IP address of the client;

allocating a small TCP control block (TCB) to service a TCP/IP three-way handshake; and

10 transmitting a TCP-ACK to the IP address of the client.

2. The method of claim 1, further comprising:

receiving an ACK from the client in response to the TCP-ACK, the receipt of the ACK completing an establishment of a TCP connection; and

15 thereafter notifying a socket layer of the TCP connection.

3. The method of claim 2, further comprising caching route information for the client performed after receiving the ACK from the client.

20 4. The method of claim 3, further comprising allocating a full TCB to service the TCP connection after receiving the ACK from the client.

5. The method of claim 2, further comprising allocating a full TCB to service the TCP connection after receiving the ACK from the client

6. The method of claim 1, further comprising:
5 receiving an ACK from the client in response to the TCP-ACK, the receipt of the ACK completing an establishment of a TCP connection; and
thereafter caching route information for the client.

7. The method of claim 6, further comprising notifying a socket layer of the
10 TCP connection performed after receiving the ACK from the client.

8. The method of claim 1, wherein the step of allocating a small TCP control block (TCB) to service a TCP/IP three-way handshake comprises allocating a small TCB of size sufficient only to service the TCP/IP three-way handshake.

9. The method of claim 1, wherein the step of allocating a small TCP control block (TCB) to service a TCP/IP three-way handshake comprises allocating a small TCB of size insufficient to service the TCP connection.

10. The method of claim 1, further comprising:
20 receiving an ACK from the client in response to the TCP-ACK, the receipt of the ACK completing an establishment of a TCP connection; and
thereafter allocating a full TCB to service the TCP connection.

11. A method of enhancing a server's ability to withstand a SYN flood attack, the method comprising:

receiving a TCP SYN packet requesting the formation of a TCP/IP connection
5 from a client having a source IP address;
transmitting a SYN-ACK to the client at the source IP address;
awaiting receipt of an ACK from the client at the source IP address; and
thereafter notifying a socket layer of the TCP/IP connection.

10 12. The method of claim 11, further comprising caching route information for the client after receipt of the ACK from the client.

13. The method of claim 12, further comprising allocating a small TCP control block (TCB) after receiving the TCP SYN.

15 14. The method of claim 13, further comprising allocating a full size TCB after receiving the ACK from the client.

20 15. A method of enhancing a server's ability to withstand a SYN flood attack, the method comprising:

receiving a TCP SYN packet requesting a TCP/IP connection from a client;
allocating a small TCP control block (TCB) of size sufficient only to service the
TCP/IP connection request;

transmitting a SYN-ACK to the client;

delaying a notification of the TCP/IP connection request to a socket layer until an ACK is received from the client; and

5 delaying a caching of route information for the client until the ACK is received from the client.

16. The method of claim 15, further comprising:

receiving the ACK from the client; and thereafter

allocating a TCB of size sufficient to service the TCP/IP connection;

10 notifying the socket layer of the TCP/IP connection; and

caching route information for the client.

17. A method of enhancing a server's ability to withstand a SYN flood attack, the method comprising:

15 receiving a TCP SYN from a supposed client to establish a TCP connection;

transmitting a SYN-ACK to the supposed client; and

only upon and if receipt of an ACK from the supposed client:

1) caching route information for the supposed client; and

2) notifying a socket layer of the TCP connection.

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18. The method of claim 17, further comprising allocating upon receipt of the TCP SYN a small TCP control block (TCB).

5 20. The method of claim 18, further comprising, only upon and if receipt of an
ACK from the supposed client, allocating a TCB of size sufficient to service the actual
TCP connection.